

**AMENDMENTS TO THE CLAIMS**

1. (Previously Presented) A method for a first Web service client to invoke a service hosted on a second Web service client on behalf of a principal in a computer environment, comprising the steps of:

said principal logging in with a discovery service;

said discovery service passing to said principal an identity assertion associated with said principal and a discovery service descriptor associated with said discovery service for use by discovery service for future authentication;

said principal authenticating using said identity assertion and using said discovery service descriptor at said first Web service client, said first Web service client representing a desired commerce site;

in response to an action related to said desired commerce site, said first Web service client requesting a first service descriptor associated with said first Web service and a first service assertion associated with said first Web service from said discovery service;

in response to receiving said first service descriptor and said first service assertion, said first Web service client invoking a desired service at said first Web service;

upon said first Web service determining a need to invoke a second desired service at a second Web service, said second Web service requesting from said first Web service a second service descriptor associated with said second Web service and a second service assertion associated with said second Web service; and

in response to receiving said request for said second service descriptor and said second service assertion, said discovery service concatenating said second service assertion to said first service assertion and subsequently passing said first service assertion and said second service assertion to said second Web service via said first Web service;

in response to receiving said first service assertion and second service assertion, said first Web service invoking said desired second service at said second Web service,

wherein said second Web service obtains chained assertions from said first Web service, wherein said first Web service obtains said chained assertions from said discovery service, wherein said chained assertions comprise said identity assertion and said discovery service descriptor sent to said discovery service by said principal.

2. (Original) The method of Claim 1, wherein said first Web service invokes one or more services hosted on one or more Web servers.
3. (Original) The method of Claim 1, wherein said Web service client, said discovery service, said first Web server, and said second Web server are members of a federation relationship in which each member trusts said discovery service.
4. (Original) The method of Claim 1, wherein said service assertion is any of, but not limited to:
  - a ticket;
  - a token;
  - is notarized by said discovery service; and
  - is certified by said discovery service.
5. (Previously Presented) The method of Claim 4, wherein said service assertion is implemented using any of, but not limited to:
  - a string;
  - a certificate;
  - a public key; and
  - discovery keys wherein the discovery service has copies of the keys.
6. (Original) The method of Claim 1, wherein said service descriptor comprises any of, but not limited to:
  - a URL;
  - a String; and
  - a Simple Object Access Protocol (SOAP) address for Web services.

7. (Previously Presented) An apparatus for a first Web service provider to invoke a service hosted on a second Web service provider on behalf of a principal in a computer environment, comprising:

means for said principal logging in with a discovery service;

means for said discovery service passing to said principal an identity assertion associated with said principal and a discovery service descriptor associated with said discovery service for use by principal for future authentication;

means for said principal authenticating using said identity assertion and using said discovery service descriptor at a Web service client, said Web service client linking to and representing a desired commerce site of said principal;

in response to an action related to said desired commercial site, means for said Web service client requesting a first service descriptor associated with said first Web service and a first service assertion associated with said first Web service from said discovery service;

in response to receiving said first service descriptor and said first service assertion, means for said Web service client invoking a desired service at said first Web service;

upon said first Web service determining a need to invoke a second desired service at a second Web service, means for said first Web service requesting from said discovery service a second service descriptor associated with said second Web service and a second service assertion associated with said second Web service; and

in response to receiving said request for said second service descriptor and said second service assertion, means for said discovery service concatenating said second service assertion to said first service assertion and subsequently passing said first service assertion and said second service descriptor to said first Web service;

in response to receiving said first service assertion and second service descriptor, means for said first Web service invoking said desired second service at said second Web service.

8. (Original) The apparatus of Claim 7, wherein said first Web service invokes one or more services hosted on one or more Web servers.

9. (Original) The apparatus of Claim 7, wherein said Web service client, said discovery service, said first Web server, and said second Web server are members of a federation relationship in which each member trusts said discovery service.

10. (Original) The apparatus of Claim 7, wherein said service assertion is any of, but not limited to:

- a ticket;
- a token;
- is notarized by said discovery service; and
- is certified by said discovery service.

11. (Previously Presented) The apparatus of Claim 10, wherein said service assertion is implemented using any of, but not limited to:

- a string;
- a certificate;
- a public key; and
- discovery keys wherein the discovery service has copies of the keys.

12. (Original) The apparatus of Claim 7, wherein said service descriptor comprises any of, but not limited to:

- a URL;
- a String; and
- a Simple Object Access Protocol (SOAP) address for Web services.

13. (Previously Presented) A program storage medium readable by a computer, tangibly embodying a program of instructions executable by the computer to perform a method for updating address information in a computer environment, the method comprising the steps of:

said principal logging in with a discovery service;

said discovery service passing to said principal an identity assertion associated with said principal and a discovery service descriptor associated with said discovery service for use by principal for future authentication;

said principal authenticating using said identity assertion and using said discovery service descriptor at a Web service client, said Web service client linking to and representing a desired commerce site of said principal;

in response to an action related to said desired commercial site, said Web service client requesting a first service descriptor associated with said first Web service and a first service assertion associated with said first Web service from said discovery service;

in response to receiving said first service descriptor and said first service assertion, said Web service client invoking a desired service at said first Web service;

upon said first Web service determining a need to invoke a second desired service at a second Web service, said first Web service requesting from said discovery service a second service descriptor associated with said second Web service and a second service assertion associated with said second Web service; and

in response to receiving said request for said second service descriptor and said second service assertion, said discovery service concatenating said second service assertion to said first service assertion and subsequently passing said first service assertion and said second service descriptor to said second Web service via said first Web service;

in response to receiving said first service assertion and second service descriptor, said first Web service invoking said desired second service at said second Web service.

14. (Original) The medium of Claim 13, wherein said first Web service invokes one or more services hosted on one or more Web servers.

15. (Original) The medium of Claim 13, wherein said Web service client, said discovery service, said first Web server, and said second Web server are members of a federation relationship in which each member trusts said discovery service.

16. (Original) The medium of Claim 13, wherein said service assertion is any of, but not limited to:

- a ticket;
- a token;
- is notarized by said discovery service; and
- is certified by said discovery service.

17. (Previously Presented) The medium of Claim 16, wherein said service assertion is implemented using any of, but not limited to:

- a string;
- a certificate;
- a public key;
- discovery keys wherein the discovery service has copies of the keys; and
- a form of cryptography.

18. (Original) The medium of Claim 13, wherein said service descriptor comprises any of, but not limited to:

- a URL;
- a String; and
- a Simple Object Access Protocol (SOAP) address for Web services.

19. (Previously Presented) A process for a first Web service provider to invoke a service hosted on a second Web service provider on behalf of a principal in a computer environment, comprising the steps of:

- said principal logs in with a discovery service for subsequent authentication;
- in response to said log in, said discovery service passing an identity assertion and a discovery service descriptor to said principal;

said principal uses said identity assertion and said discovery service descriptor to access a Web commerce site with a Web service client software interface application;

said Web service client software interface application requesting a first service descriptor and a first service assertion for a first desired service at a first Web server from said discovery service;

in response to receiving said first service descriptor and said first service assertion from said discovery service, said Web service client software interface application invoking said first desired service at said first Web server;

said first Web server requesting a second service descriptor and a second service assertion for a second desired service at a second Web server from said discovery service;

on behalf of said principal, said discovery service retaining a footprint of: (1) said application requesting said first service descriptor and said first service assertion and (2) said first Web server requesting said second service descriptor and said second service assertion; and

in response to receiving said second service descriptor and said second service assertion from said discovery service, said first Web server invoking said second desired service at said second Web server on behalf of said principal.

20. (Previously Presented) An apparatus for a first Web service provider to invoke a service hosted on a second Web service provider on behalf of a principal in a computer environment, comprising:

means for said principal logs in with a discovery service for subsequent authentication;

in response to said log in, means for said discovery service passing an identity assertion and a discovery service descriptor to said principal;

means for said principal using said identity assertion and said discovery service descriptor to access a Web commerce site with a Web service client software interface application;

means for said Web service client software interface application requesting a first service descriptor and a first service assertion for a first desired service at a first Web server from said discovery service;

in response to receiving said first service descriptor and said first service assertion from said discovery service, means for said Web service client software interface application invoking said first desired service at said first Web server;

means for said first Web server requesting a second service descriptor and a second service assertion for a second desired service at a second Web server from said discovery service;

in response to receiving said second service descriptor and said second service assertion from said discovery service, means for said first Web server invoking said second desired service at said second Web server on behalf of said principal; and

means for retaining a footprint of requested services, wherein said footprint contains both said first service assertion and said second service assertion.

21. (Previously Presented) A program storage medium readable by a computer, tangibly embodying a program of instructions executable by the computer to perform a method for updating address information in a computer environment, the method comprising the steps of:

said principal logs in with a discovery service for subsequent authentication;

in response to said log in, said discovery service passing an identity assertion and a discovery service descriptor to said principal;

said principal uses said identity assertion and said discovery service descriptor to access a Web commerce site with a Web service client software interface application;

said Web service client software interface application requesting a first service descriptor and a first service assertion for a first desired service at a first Web server from said discovery service;

in response to receiving said first service descriptor and said first service assertion from said discovery service, said Web service client software interface application invoking said first desired service at said first Web server;



said first Web server requesting a second service descriptor and a second service assertion for a second desired service at a second Web server from said discovery service;

wherein said discovery service maintains a footprint of requested services, wherein said footprint contains both said first service assertion and said second service assertion; and

in response to receiving said second service descriptor and said second service assertion from said discovery service, said first Web server invoking said second desired service at said second Web server on behalf of said principal.